TEXTILE TECHNOLOGY DIGEST

VOLUME 11 APRIL, 1954 NUMBER 4

ABSTRACTS

FIBERS A

NATURAL FIBERS A 1

Optical and electron microscopic studies of cotton fiber structure

M. L. Rollins and V. W. Tripp (Southern Regional Research Laboratory). *Textile Research J. 24:* 345-357 (April, 1954).

The appearance, growth, and structure of a cotton fiber are described and photomicrographs and electron micrographs are used to illustrate both gross and fine features of the cell wall morphology. Heretofore, microscopy of the fiber has been limited to the use of dispersion, swelling and staining methods, in plain and polarized light. The development during the present study of methods for isolation of individual components of the cell wall for purposes of electron microscopy has permitted interesting observations with the light microscope. Quantitative measurements of shrinkage in the isolated primary wall of the cotton fiber during mercerization confirm its restrictive influence on the fiber during swelling in various agents. Electron microscope studies have been made on isolated primary wall fragments which have been purified by removal of noncellulosic constituents by extraction. The first layer of secondary thickening, called the "winding layer", has been isolated from 17-day old cotton fibers and photographed with both optical and electron microscopes. Electron micrographs of fragments of the main body of the secondary wall show an entirely different pattern of fibril arrangement from either the primary wall or the winding layer. 18 references.

Cotton from the quality angle

H. Altwegg. Winterthur, Switzerland: Volkert Bros, 1953. 67 pages plus chart. In English. Through *Brit. Cotton Ind. Research Assoc. 34:* 251 (April 15, 1954).

Part 1 of this publication deals with cotton growing, cotton quality, and cotton marketing; Part 2 gives quality descriptions of particular cotton crops: East Indian, American, Mexican, Brazilian, Argentine, Paraguay, Peruvian, Sea Island, Egyptian, Sudan, East African, Belgian Congo, Turkish, Syrian, Iranian, and Iraqi; and details of color and staple are shown in a chart published as an appendix.

How mill processing affects cotton cellulose

R. F. Schwenker, Jr. and J. C. Whitwell (Textile Research Institute). *Textile Ind. 118:* 104-107 (May, 1954).

A summary of the research during the past five years at the Textile Research Institute on changes occurring in cotton during normal textile mill processing. References to the literature are given.

Abaca: a cordage fiber

B. B. Robinson and F. L. Johnson. Beltsville, Md: U. S. Department of Agriculture, October 1953. 130p. Agriculture monograph no. 21. Available from the Superintendent of Documents, Washington 25, D. C. $.65.

This monograph discusses the physical and chemical characteristics of abaca as compared with other cordage fibers or their products, as well as the economic and agricultural problems connected with abaca production. 195 references.

The effect of retting on the physical-chemical properties of the hemp fiber

G. Centola. *Teintex 19:* 241-253 (April 15, 1954); *in French.*

Photomicrographs, tables, and graphs are presented along with a discussion of preliminary research on the effects on the fiber of hemp retting. 14 references.

The fine structure of ramie

A. Vogel (Eidg. Tech. Hochschule, Zurich, Switzerland). *Makromol. Chem. 11:* 111-128 (1953). Through *Chem. Abstracts 48:* 4843 (April 25, 1954).

Purified ramie fibers were mechanically disintegrated and examined electron microscopically by using the double shadow technique.

Some chemical experiments on wools

H. P. Lundgren (Western Regional Research Laboratory). *Textile Research J. 24:* 342-344 (April, 1954).

Fundamental and applied research on wool at the Western Regional Research Laboratory is discussed. 7 references.

MAN-MADE FIBERS A 2

Artificial fibers

R. W. Moncrieff. London: National Trade Press, 1954. 445p. 2nd edition. Through *Brit. Cotton Ind. Research Assoc. 34:* 252 (April 15, 1954).

The aim of the author has been to give the salient facts about the production and properties of every artificial fiber produced for use. As compared with the original volume (1950), the new edition includes information about Acrilan, X-51, Merinova, Fiber E, Rhovyl, Vinylon, and Vinyon HH; more attention has been given to dyeing methods and staple blending; and there is a new chapter on economic and social aspects of artificial fiber production.

Chemical fibers—a review of their versatility and their properties

P. A. Koch. *Melliand Textilber. 34:* 707-710, 820-822, 914-920, 1025-1027, 1115-1117 (1953); *in German.* Through *Chem. Abstracts 48:* 4224 (April 10, 1954).

63 references. (See also *TTD 10:* 1324 (August, 1953)).

Chemical processes in the formation of synthetic fibers

E. Muller (Univ. Tubingen, Germany). *Melliand Textilber. 34:* 850-852, 951-953, 1065-1067 (1953). Through *Chem. Abstracts 48:* 4224 (April 10, 1954).

A review with 48 references.

Production and properties of solution-dyed acetate

P. F. Flamm (Tennessee Eastman Co.). *Textile Research J. 24:* 357-361 (April, 1954).

Structure and dehydration of cuprammonium rayon

H. Liedtke. *Melliand Textilber. 35:* 378-381 (April, 1954).

The author investigates the hydrophilic and drying conditions of cuprammonium rayon materials as functions of their structure.

Polythene in textiles: Courlene yarn

Textile Wkly. 53: 1060-1066 (April 9, 1954).

Courlene is produced from polythene (polyethylene), a tough, flexible, thermoplastic material which is exceptionally inert and resists attack by most chemicals at normal temperatures. Courlene is unaffected by insects or bacteria and as it does not absorb moisture, color is introduced by pigmentation of the melt. Courlene possesses many distinct properties which make it attractive for specialized end-uses. Properties and uses are discussed and practical suggestions are given for handling and processing.

Zein: an annotated bibliography, 1891-1953

D. M. Rathmann. Pittsburgh, Pa.: Mellon Institute, 1954. 118p. Bibliographic series bulletin no. 7.

As familiarity with the unique properties of zein has grown, ever widening uses have become apparent in protective and decorative coatings, films, fibers and adhesives. This annotated bibliography is a comprehensive guide to the literature on zein for the period 1891 to 1953, inclusive. The bibliography consists of 942 citations comprising 256 U. S. patents, 224 foreign patents, 374 journal articles, and 88 books and general review articles. These references and abstracts are grouped according to major fields of interest and are arranged chronologically within each section.

YARNS B

OPENING AND PICKING B 1

Blowing room machinery: proper maintenance

J. K. Clegg. *Textile Recorder 71:* 72-76 (April, 1954).

Some practical suggestions and recommendations for the setting, running and upkeep of the opening room machinery.

Saco-Lowell No. 15 and No. 16-1 openers

Saco-Lowell Bull. 26: 2-14 (April, 1954).

Data, illustrations, diagrams and floor plans are presented.

CARDING AND COMBING B 2

All-steel card clothing in three- and four-roller spinning

K. Buschmann. *Faserforsch. u. Textiltech. No. 12:* 511-528 (1953); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 257 (April 15, 1954).

Processes and methods are reviewed, that were developed to eliminate the periodical stripping of the card and thereby the cause of loss of material and irregularities in the silver. The introduction of the all-steel card clothing is a satisfactory solution of the card-stripping problem, resulting in improved sliver uniformity, economy of labor and material, and increased production. It can be used for staple fiber (being superior to the spiked card clothing) and in large-scale processing of cotton.

Application of control rolls to the card

Saco-Lowell Bull. 26: 18-21 (April, 1954).

Control rolls are described for producing a clean, more even sliver, free from lumps, and with fewer neps. They may be used with cotton and synthetics and are applicable to revolving flat and roller top cards.

More productive, happier card tenders

R. J. Kissiah. *Textile Bull. 80:* 77-79 (April, 1954).

An industrial engineering program at Joanna Cotton Mills Company increased card tending efficiency and raised the number of cards operated by each tender from 42 to 59.

Variations in woolen carding

A. Brearley. *Wool Record 85:* 867-868 (April 15, 1954).

This article deals with the form of irregularity experienced in woolen carding: the variation found in the weights of equal lengths of all slubbings produced simultaneously from one side of the card to the other. A rapid practical test for mill use is given. 5 references.

Comb box

Saco-Lowell Bull. 26: 16-17 (April, 1954).

Saco-Lowell's new roller-bearing comb box for the card is described.

Saco-Lowell model 54 comber

Saco-Lowell Bull. 26: 34-41 (April, 1954).

A description of the features of the Model 54 comber includes operational data and photographs.

The Whitin Model J comber

Whitin Rev. 21: 64-69 (March-April, 1954).

Mill performance since 1948 of the Model J eight head high speed comber is discussed. Features of the comber are described. Photographs, fiber arrays, a floor plan, and a production table are given.

DRAWING AND ROVING B 3

Some observations on the drafting forces of cotton and rayon-staple slivers

B. Cavaney and G. A. R. Foster. *Shirley Inst. Mem. 27:* 37-51 (February, 1954).

This paper deals with some measurements of the force required to draft cotton and rayon-staple slivers. The effects of draft, compactness of the sliver, direction and speed of drafting, and fiber properties upon the drafting force are discussed, and a few experiments on the correlation between drafting force and drafting irregularity are described.

Drawing: the scientist looks at the wool industry. Part 1

Wool Sci. Rev. No. 12: 3-19 (March, 1954).

The scientist looks critically at Bradford and Continental drawing, at sliver irregularity testing and testers, at sliver irregularity and sliver structure and a number of other aspects of drawing. The work described in part 1 is mainly of an empirical nature. More fundamental research will be described in part 2. 7 references.

Roving uniformity

T. A. Hendricks (Clemson College). *Textile Ind. 118:* 119-123 (May, 1954).

A study was made on how draft distribution on the Saco-Lowell J-3 roving frame affects uniformity. Within the limits of the test the following conclusions were reached: (1) Regardless of the weight of the sliver fed or the size of the roving produced, the most uniform results are obtained on the Model J-3 roving frame with 11½ grains per yard of stock in the condensing zone. (2) A more even roving is produced with 52- and 62-grain slivers than with 42- and 72-grain slivers. (3) Coarse rovings can be produced with better uniformity than fine rovings.

Influence of the size of the drafting zones and the weighting of the rollers in spinning Perlon staple

K. Quaas. *Melliand Textilber. 35:* 347-348 (April, 1954); *in German.*

The author points out that, in spinning Perlon staple of the B types, irregular accumulations of fibers may occur, not only in the main drafting zone, but also in the preliminary drafting zone owing to the fact that fibers of excessive length are still sometimes present in these Perlon types. The same applies for the W types (wool trade

qualities) despite the drawing systems with lightly weighted middle rollers used in the worsted system. For this reason, the author is of the opinion that, in Perlon spinning, the feed rollers should not be so adjusted as to completely prevent the fibers from slipping. This information is offered, pending the results of further comparative tests with Perlon staple which are at present under way.

American system roving and spinning

Whitin Rev. 21: 8-19 (March-April, 1954).

The new Whitin Quik-Set roving frame and the Whitin American Superflex spinning frame are described. Photographs, data and diagrams are included.

Controlled draft for spinning

Saco-Lowell Bull. 26: 53-61 (April, 1954).

The Saco-Lowell Shaw drafting system Model SS-2 is explained in detail with diagrams, operational data, and photographs.

Duo-Roth drafting

Saco-Lowell Bull. 26: 62-70 (April, 1954).

Saco-Lowell models SDR-1, SDR-2 and SDR-3 Duo-Roth drafting systems are described by means of diagrams, photographs, and tables of data.

F-5 drafting element for roving

Saco-Lowell Bull. 26: 43-51 (April, 1954).

Details of Saco-Lowell's F-5 roving drafting assembly include diagrams, photographs, operational data and Uster test data. The spur gear anti-friction bearing roving compound is also described.

The 4 over 5 drawing frame

Saco-Lowell Bull. 26: 23-29 (April, 1954).

Saco-Lowell's Model DS-4 drawing frame is described with production data, diagrams, and photographs.

OM type super high draft spinning frame

O-M Spinning Machine Manufacturing Co. Ltd. *Indian Textile J. 64:* 49-50,64 (October, 1953). Through *Brit. Cotton Ind. Research Assoc. 34:* 258 (April 15, 1954).

Some details are given of the performance and advantages of a new Japanese high drafting system. Known as the OM-S type super high draft spinning frame, it eliminates all speed frames, handling drawframe sliver directly. Yarn spun on the new system is claimed to be more regular in count and strength and to be over 10 per cent stronger than yarn spun by the ordinary process on speed frames; some data are given to substantiate these claims. The range of counts is from 20s to 140s, the corresponding drafts running from 150 to 700.

The Roto-Drafter

Whitin Rev. 21: 2-7 (March-April, 1954).

Data, diagrams, and photographs are included in this description of the new Whitin American system machine for processing top, the Roto-Drafter. Quick conversion to the Rolo-Drafter for running blended or unblended square cut staple is described.

Roving frames

Whitin Rev. 21: 75-79 (March-April, 1954).

A number of Whitin roving frames for cotton and short staple synthetic fibers are briefly described. Photographs.

Saco-Lowell Z-6 drafting system

Saco-Lowell Bull. 26: 85-88 (April, 1954).

The operation of the Z-6 drafting system is described with photograph, diagram and table of operational data.

Whitin Even-Draft drawing frame

Whitin Rev. 21: 70-73 (March-April, 1954).

The recently developed Whitin Even-Draft drawing frame has a four over five roll arrangement, handles fibers ranging from 7/8"-3" with minimum changes of roll settings and operates at a front roll production speed of 150 feet per minute. Photographs, tables, and a floor plan are included.

SPINNING, WINDING, TWISTING B 4

Reduce ends down

H. M. Brown (Clemson College). *Textile Ind. 118:* 96-98 (May, 1954).

Temporary twist in roving and spinning as it leaves the front drafting rolls will reduce ends down. An improved Clemson pre-twister is described. Photographs and a diagram are presented.

Experiences with travelers of different weights in spinning Perlon staple

N. Reinfeld. *Melliand Textilber. 35:* 348-349 (April, 1954); *in German.*

Gwaltney spinning system

Saco-Lowell Bull. 26: 79-82 (April, 1954).

The SG-1 spinning frame is described and operational data and photographs are given. There is a diagram of the operation of the anti-node rings.

New wool spinning frame

Whitin Machine Works. *Am. Textile Reptr. 68:* 28-29 (April 15, 1954).

Whitin Spin-Flex frame features instantly variable speed control and improved nipper design.

Saco-Lowell SS-4 spinning frame

Saco-Lowell Bull. 26: 71-77 (April, 1954).

Model SS-4 worsted spinning frames are described. Photographs and operational data are given.

Stains direct spinner

Société de Constructions Mecaniques de Stains. *Whitin Rev. 21:* 40-47 (March-April, 1954).

Tow to yarn in one operation from continuous filament. The machine is described in detail. Diagrams, photographs, and tables of production data are given.

The Whitin Flex-Spin wool spinning frame

Whitin Rev. 21: 24-32 (March-April, 1954).

Over 20 improvements are cited in this description of the Model E wool ring spinning frame. Photographs, diagrams, a floor plan, and tables of data are presented.

Whitin Superflex spinning frame

Whitin Rev. 21: 80-92 (March-April, 1954).

The Superflex spinning frame for cotton and spun synthetic fibers is described in detail. Photographs.

Worsted spinning machines made by Spima of Augsburg/Hochzoll

Textil-Praxis (English ed.) No. 3: 118 (September, 1953).

Spima has undertaken the standardization of drive and gear mechanisms for its worsted preparing machines so that gears used on them will be interchangeable. The tendency has been to simplify the machines while making them more rugged. The intersecting gill box is designed to run up to speeds of 1200 faller drops per minute. Worsted spinning frames are produced in 48 spindle units capable of being joined together to produce units of up to 384 spindles.

Handbook of twisting. Chapter 2. Part 3. Twisting devices

N. Truslow. *Textile Bull. 80:* 64-66 (April, 1954).

Mule spinning and the down twister are discussed and illustrated.

Saco-Lowell model 4 twister

Saco-Lowell Bull. 26: 89-92 (April, 1954).

Details of the Model 4 twister, originally designed for the tire-cord industry, are given and include photographs and a table of operational data.

Whitin Pacemaker ring twister

Whitin Rev. 21: 20-23 (March-April, 1954).

Photographs and a floor plan supplement the description of this ring twister.

Whitin Ply-King and Cable-King uptwisters

Whitin Rev. 21: 48-63 (March-April, 1954).

Uptwisters for processing rayon and nylon tire cord and other industrial yarns are described. Photographs, floor plans, and flow charts are presented.

Whitin Speed-Matic automatic filling bobbin winder

Whitin Rev. 21: 33-39 (March-April, 1954).

Outstanding features of this winder, as well as an empty bobbin loader and a pin boarding device, are described in detail. Photographs and a floor plan are also given.

Winding tension control

J. Rawson and Sons, England. *British Rayon and Silk J. 30:* 60 (April, 1954).

A new yarn tension compensator consists of a spring-loaded disc-type tensioner compounded with a tension relieving arm. The special feature of the compensator is the numerous adjustment points making it suitable, it is claimed, for every kind of yarn and all types of machine.

GENERAL B 5

The intrinsic clinging power and cohesion-slipping interrelation: their determination and effect upon the formation of yarn

W. Meyer. *Textil-Praxis 9, No. 1:* 17-20 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 258 (April 15, 1954).

The 3- and 4-roller spinning process comprises three different stages: (1) the formation of sliver, which includes all processes up to the card sliver and requires mainly suffcient clinging properties of the fibers to ensure a good web and sliver cohesion; (2) the drawing of the card sliver,

where satisfactory clinging power for the untwisted sliver and sufficient slippage during drawing on the drawing frame are required; (3) the spinning of the draw-frame sliver to the desired yarn count, requiring mainly a surface treatment which enhances the slipping of the fibers, the cohesion being ensured by the twist. Methods for determining the clinging power and the drawing characteristics (slipping-clinging ratio) of fibers are reviewed, and it is concluded that, for obtaining satisfactory results with chemical fibers, the clinging power must be uniform and as low as possible, but sufficient to safeguard satisfactory sliver cohesion after the second drawing.

Scrooping yarns in spinning of cotton and staple fibers

A. Beck. *Z. ges. Textil-Ind. 56, No. 3:* 124-125 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 259 (April 15, 1954).

This defect, consisting of small knop-like nodules in the yarn, is produced by agglomeration of broken short fibers. Unlike the normal double ends, these nodules can be drawn leaving an elongated thin yarn portion with very low breaking strength. When pulled apart, the yarn produces a characteristic scrooping noise. The thin place often breaks during weaving and impairs appearance of the finished cloth. Causes of this defect are investigated and hints are given for its elimination.

Uniformity of combed wool yarns

G. Mazingue, M. Van Overbeke and H. Dillies. *Bull. Inst. Textile France No. 44:* 15-24 (February, 1954); *in French.*

This study claims that electronic capacitance evenness testers do not enable the weaver to predict the behavior of a woolen yarn during weaving. In order to assess the value of a worsted yarn, as to ends-down on looms, the regularity in tenacity should be determined and it is twist uniformity that characterizes a worsted yarn in evenness of appearance.

Problems in fiber blends

J. B. Goldberg. *Textile Research J. 24:* 374-378 (April, 1954).

Problems discussed include fly contamination, uneven blending, non-fugitive tints, fiber breakage, lubrication and surface effects, static, and effects of deniers, lengths, and stress-strain properties.

Nylon staple on the cotton system

A. Cooper. *British Rayon and Silk J. 30:* 61-64 (April, 1954).

Developments in the processing of 1½ denier fiber are described.

Processing Terylene: technical notes

D. N. Marvin. *Skinner's Silk and Rayon Record 28:* 370-372 (April, 1954).

Testing in the worsted mill: the control of topmaking. Part 1

Wool Sci. Rev. No. 12: 44-59 (March, 1954).

This article describes some of the methods which have been found valuable for controlling worsted sliver production in the firm of Peltzer et Fils, Verviers, Belgium.

FABRICS C

WARPING, SLASHING, YARN PREPARATION C 1

Behavior of staple fiber yarns during sizing

O. Schenzinger. *Textil-Praxis 9, No. 1:* 40-45 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 264 (April 15, 1954).

The purpose of the experiments reported was to determine the behavior of the fibers during wet treatment in the sizing trough and the subsequent drying process. Some preliminary tests (for example, tensile-strength testing by means of the Frenzel-Hahn yarn tester, effect of storage and of various preliminary tensions on yarn elongation) are described, and the results are presented graphically. Special reference is made to sizing of beam-dyed yarns, and the advantages of a flat drier *(Plantrockner)* as compared with a cylinder drier, are pointed out.

One-step dye-slash

Brawer Bros. Silk Co. *Textile Ind. 118:* 109-110 (May, 1954).

A single piece of equipment is claimed to synchronize beaming, yarn dyeing, and slashing at cost savings up to 50% of the conventional yarn dyeing and warping methods. The range is 25 feet long. It is fed by rayon or Bemberg section beams in any denier from 100 up, and delivers a dyed and sized warp of uniform color and suitable beam density ready for placement in the loom. Photographs and a diagram.

Systematic study of sizing. Part 4

R. Schutz and S. Marguier. *Bull. Inst. Textile France No. 44:* 25-39 (February, 1954); *in French.*

The purposes of this study are: (1) To establish a connection between the behavior of yarns on mill looms and some of their intrinsic properties ascertained in laboratory tests. It shows that the greater the breaking elongation of a sized yarn and its resistance to fatigue by repeated extensions, the better it behaves on the loom. These properties will therefore serve to classify sized yarn according to the conditions of the projected systematic study, while the other traditional tests (dynamometric resistance and resistance to abrasion) are used to characterize sizings. (2) To show that identical sizings are reproducible in the laboratory. (3) To emphasize that processes developed in the laboratory can be used on an industrial scale by using the apparatus described in previous studies and by operating in the mill under conditions absolutely identical with those in the laboratory. 4 references.

WEAVING C 2

Checking the shuttle in powerloom weaving. Part 2

H. Barlow. *Textile Recorder 71:* 81-83 (April, 1954).

In this second part of a survey of shuttle checking mechanisms details are given of a wide variety of loose reed and fast reed looms.

The crossing of threads in shedding

E. Bradbury and A. P. Worthington. *Shirley Inst. Mem. 27:* 123-139 (March, 1954).

The amount of fiber lost in shedding by a staple warp between lease rods and healds has been used as an index of the hindrance to crossing caused by projecting fibers. With four staves weaving plain, the effect of varying the warp tension with each of three different leasing systems has been measured. The effect of varying the distance between lease rods and healds has also been investigated. The results indicate that the major resistance to crossing is caused by trapping of the projecting fibers between adjacent threads, and the severity of trapping can be reduced, not only by dividing the sheets of warp into subsidiary sheets at the crossing position, but, independently of this, by dividing the sheets at open shed.

Research and the development of the loom

I. H. Thomas (British Cotton Industry Research Assoc.). *Textile Wkly. 53:* 1127-1134 (April 16, 1954).

The purpose of this paper is to describe some of the research work and the subsequent development work carried out on looms at the Shirley Institute and elsewhere.

Shuttle propulsion

A.T.C. Robinson. *Skinner's Silk and Rayon Record 28:* 420-421 (April, 1954).

The author considers the principles of shuttle propulsion in looms having conventional picking mechanisms.

Textile calculations. Part 11. Loom mechanism calculations

N. C. Gee. *Textile Mfr. 80:* 172-174 (April, 1954).

Exercises and worked examples connected with depth of warp shed, tappet throw, yarn stretch, shuttle velocity, crank speed, throw and timing and other factors in loom operation.

Thin round-wire healds for fine fabrics

Textil-Praxis (English ed.) No. 3: 127 (September, 1953).

Thin round wire heddles capable of being used for weaving fine fabrics are being manufactured by Messrs. C. Walter Bracker of Zurich, Switzerland.

Weaving faults. Part 3

G. Turton and K. Greenwood (British Rayon Research Assoc.). *Textile Wkly. 53:* 975-978 (April 2, 1954).

Avoiding defects in filament rayon: covering of take-up roller, warp stop motion, standing places, repping, let-off motion, fog marking, and cannage are mentioned.

Weaving random stripes

E. Waller (Dan River Mills). *Textile Bull. 80:* 81-82 (April, 1954).

The manufacture of this pattern usually requires a complex layout, but a much more simple method is described.

Weaving technique of weft-backed fabrics

J. Laurenzen. *Textil-Praxis (English ed.) No. 3:* 125-127 (September, 1953).

The fundamental design of weft-backed fabrics is discussed and illustrated. Some factors affecting the amount of pile on fabrics, their strengths, and their textures are mentioned.

KNITTING C 3

Principles of weft knitting. Part 12. Fully-fashioned hose manufacture

S. B. Bradley. *British Rayon and Silk J. 30:* 56-58 (April, 1954).

The French foot leg blank and the finished hose French foot are described and diagramed. Standard production method is given with details of alternative toe narrowings.

Shaping of knitwear

J. B. Lancashire. *Textile Recorder 71:* 77-80 (April, 1954).

A survey of the various methods and combinations of methods which are available for the shaping of weft-knitted garments.

GENERAL C 4

The complementary nature of fibers from natural and from synthetic polymers

J. B. Quig and R. W. Dennison (E. I. du Pont de Nemours and Co.). *Textile Research J. 24:* 361-373 (April, 1954).

Detailed investigations of the properties of fabric blends lead to the conclusion that fibers from synthetic and from natural polymers are complementary in nature. Thus, there are evident advantages in choosing fibers that will best suit the use to which the final fabric will be put. By studying the ultimate usage of a fabric, the textile manufacturer can choose a single fiber or a blend of fibers from synthetic and natural materials that will render the most satisfactory service and have the desired aesthetic properties. In this investigation, nylon staple, Dacron polyester staple, or Orlon acrylic staple was combined with rayon staple, acetate staple, or wool. Two component blends were made containing one of the new and one of the old fibers. The resulting blends of fibers were carefully processed into yarns and fabrics. Yarn diameter and twist along with fabric pick and end count and finishing were controlled to give as comparable fabric structure as practicable throughout a given set of fabrics. Among the fabric characteristics examined were strength, abrasion resistance, recovery from wrinkling, ability to retain a pressed crease, flammability, and the sensitivity of certain of these properties to humidity, dry cleaning, and laundering. Results are summarized. 12 references.

Braiding technology. Part 2. Tubular braids, methods of track and carrier construction

D. Brunnschweiler. *Skinner's Silk and Rayon Record 28:* 380-382 (April, 1954).

Cloth setting reconsidered. Part 7

S. Brierley. *Textile Mfr. 80:* 176,192 (April, 1954).

The square face settings of weft-backed weaves vary as the square root of the true average counts of all warp and weft yarns according to the structure of the fabric.

Clothing construction processes and techniques applied to fabrics made from synthetic fibers

F. Goldsmith and D. McDade. *J. Home Econ. 46:* 313-316 (May, 1954).

A study to determine correct home sewing techniques for fabrics made from synthetic fibers and blends containing synthetic fibers is described.

Electrostatic flocking

F. Hensel. *Textil-Praxis (English ed.) No. 3:* 119-122 (September, 1953).

Electrostatically charged short fibers are attracted in an upright layer to an adhesive coated article and fixed by heat. A Swiss firm, Hug A. G., of Wildegg, has developed a line of machines and glues for producing flocked surfaces on items ranging in size from narrow tapes to strips of material 72″ wide. Textile, cardboard, paper, rubber, and plastic sheets are treated to give total surface coverage or printed effects. Glues are available which give flocked surfaces on textiles that are absolutely fast to washing and boiling.

Fibers for use in decorative fabric field

E. Carrier. *Can. Textile J. 71:* 57-59 (April 23, 1954).

Practically all the known synthetic fibers can be used in blends for the manufacture of decorative fabrics. The author explains some advantages of particular fibers.

Further studies in textile design. Part 4. Drafting styles

Textile Recorder 71: 84-85 (April, 1954).

The "make" of a carpet. Part 1

A. Crossland. *Textile Recorder 71:* 86-88 (April, 1954).

In this, the first of two articles, the author describes the structure of a two-shot plain Wilton

carpet, explains the manner in which it is woven and discusses some of the more important factors which must be considered if faults are to be avoided.

No spinning, no weaving

Chem. Week 74: 48,50 (May 8, 1954).

A general review of new developments in chemically bonded nonwoven fabrics. Properties, uses, fibers and bonding agents, and manufacturers are reported. Pellon is mentioned in particular.

The production of nap fabrics

H. Schindler. *Melliand Textilber. 35:* 359-360 (April, 1954); *in German.*

This paper describes the production of nap fabrics from the raw material to the finished goods. The wide variety of applications is discussed, and data on the structure of various heavy fabrics are given. The author finally points out the faults that may occur in the production process and measures for their removal.

Synthetic fibers in combination fabrics

H. C. Mersereau. *Can. Textile J. 71:* 53-56 (April 23, 1954).

The author explains in detail the use of synthetic fibers in combination fabrics for industrial purposes. Relatively few "true blends" of synthetic fibers are in current use. Some difficulties encountered in selecting blends are discussed. Applications are described.

Some problems of blending

M. Harris (Harris Research Laboratories). *Textile Research J. 24:* 379-382 (April, 1954).

The author reviews some of the present difficulties encountered in engineering fabrics and suggests that with a better understanding of the potentialities of blending we should think in terms of radically new fabrics of greatly improved functionality.

Textile scaffolding threads. Part 27. The functions of the removable carrier thread

A. Johnson. *Skinner's Silk and Rayon Record 28:* 418-419 (April, 1954).

Open work effects in cotton fabrics are discussed.

Textiles and the rubber industry

S. P. Gundavda (Research Assoc. of British Rubber Manufacturers). *Indian Textile J. 64:* 300-304 (February, 1954).

A general review of research and development in connection with textile-rubber composite goods.

Uneven yarns in "pepper and salt" fabrics, their sources and elimination

H. Hardt. *Textil-Praxis (English ed.) No. 3:* 123-125 (September, 1953).

Greatly contrasting colors in pepper and salt fabrics cause yarn unevenness to have a much greater effect on fabric appearance than usual. These troubles are eliminated or reduced by working with the colors, yarns, and weaving techniques involved. Such methods as reducing color contrast, using higher plies of yarn, and placing more shuttles in the loom are advocated.

Worsted features in woolens

Wool Record 85: 736,745 (April 1, 1954).

There are many types of fabrics which owe their success to the combination of woolen and worsted and which are generally classed as woolens, although in some types the weights of each quality may be equal.

FINISHES D

WET PROCESSES D 1

The Bond Machine

B. C. Bond (Pittsburgh Coke and Chemical Co.). *Am. Dyestuff Reptr. 43:* P232-P235 (April 12, 1954).

The inventor of the Bond Machine explains how his new device for textile wet processing brings fabrics into such quick and forceful contact with dye or other liquors that equilibrium is very quickly attained between fiber and liquid medium to give uniform results at high production rates. The machine permits passage of goods horizontally in open width between parallel perforated plates, through which liquor flows by way of systematically placed holes perpendicularly toward both faces of the cloth and then laterally back toward a pump without contact of cloth with the plates. The volume of liquor in the machine is very short and is maintained by gravity feed with automatic float controls. Many uses of continuous ranges constructed with several units in tandem are suggested for carrying out different dyeing and other procedures on fabrics of various fibers and constructions. Machines to process goods at widths of 50 and 60 inches are under construction.

Crease and shrink resist finishing processes

B. C. M. Dorset. *Textile Mfr. 80:* 199-203 (April, 1954).

A number of processes are described.

Crease resist finishes for cotton and linen fabrics. Part 1

Textile Recorder 71: 89-91 (April, 1954).

The problem of ensuring a satisfactory resin finish on cotton and linen without depreciation of fabric strength and wear resistance is considered.

Eulan FL—a product for moth-proof finishing

Textil-Praxis (English ed.) No. 3: 131-135 (September, 1953).

The properties of Eulan FL, an anionic agent, and its application to wool from the dyebath are discussed.

Hydrogen peroxide for wool dyeing and finishing

P. H. Margulies (Buffalo Electro-Chemical Co.). *Textile Ind. 118:* 111-112 (May, 1954).

Hydrogen peroxide replaces mercury salts in the carroting of hair fibers, improves the fulling properties of wool, reduces chlorine uptake of wool in shrink-proofing, and promotes uniform dyeing of wool-cotton blends.

Laundering properties of the science fibers

G. H. Johnson (American Institute of Laundering). *Am. Dyestuff Reptr. 43:* P239-P242 (April 12, 1954).

The increasing appearance of the new science fibers in the form of sport shirts, hosiery, dress goods, drapes and blankets has caused the laundry industry to give much thought to processing them. Fiber identification by laundry classifiers, especially in the case of blends, is almost an impossibility. The launderer therefore must set up his washing and finishing operations to take care of one general classification to avoid excessive color loss, felting of wool (if present), extractor wrinkles, and highlights from pressing. Usually, colored articles of this type are divided into a light and dark-colored classification. Washing procedures are given for textiles containing these new science fibers; one procedure for those containing no wool and another for blends with wool. Extraction, preconditioning, drying, and pressing are also discussed. The specific behavior of various fibers in cleaning and finishing are presented.

The man-made fibers and modern trends in wet processing. Part 2

Brit. Rayon and Silk J. 30: 67-72 (April, 1954).

A review of developments in 1953. 43 references.

Peroxide bleaching of protein fibers

F. Jordinson. *Textile Mfr. 80:* 205-209 (April, 1954).

A discussion of the technique and results using hydrogen peroxide in bleaching wool (loose stock, slubbing, yarns, and fabrics), the acid bleaching process for wool blankets, bleaching pigmented wools and hairs, silk and synthetic protein fiber.

DYEING AND PRINTING D 2

The effect of dyeing on the utility of wool

P. Fink. *Textil-Rundschau 8:* 279-302, 346-368, 543-557, 613-622 (1953); *in German.* Through *Chem. Abstracts 48:* 4222-4223 (April 10, 1954).

Wool was dyed under a variety of conditions and tested for changes in commercial utility resulting from dyeing by determining the number of defects in the yarn as judged by microscopic examination after treatment with various stains, by the fiber dimensions before and after swelling, by the alkali solubility, by the pH value, by the absorptive capacity for HCl or NaOH, by the content of total and sulfide S, by the bichromate number, and by the mechanical properties (tensile strength and elongation at break). Dyed and undyed wool were then compared by determining these same properties after 100-300 hours sunlight exposure, after 2.5-10 hours exposure to a mercury arc lamp, after washing 1-5 times in 0.5% soap solution (3 g. wool/1.) for 1 hour at 40°, after sunlight exposure followed by washing, after steaming for 0.5-2 hours, or after refluxing 2 hours with 0.013N AcOH or 0.016N H_2SO_4. The results were then statistically analyzed. (Conclusions are given in detail in abstract in *Chemical Abstracts 48:* 4223 (April 10, 1954)). A comprehensive review of previous work contains 101 references.

Carrying developmental work through to plant vat dyeing procedures. Part 1

F. O. Stone. *Textile Bull. 80:* 84-87 (April, 1954).

In this series the author is attempting to show how various dyeing methods undergo various changes from the developmental or experimental stage as they are placed on plant production procedures. These transitional methods are described. Application of vat dyes by the vat-acid method is discussed.

Closed high temperature dyeing machine for dyeing at temperatures of up to 135°C (275° F)

Textil-Praxis (English ed.) No. 3: 143-144 (September, 1953).

The internal and external structure of the machine and its safety features are described.

Direct copper dyes and their uses

P. Diserens. *Teintex 18:* 683-702,769-778 (1953); *in French.* Through *Chem. Abstracts 48:* 4841 (April 25, 1954).

Review with 79 references.

Dyeability of modern synthetics

J. G. Kern (Allied Chemical and Dye Corp.). *Dyestuffs 40:* 180-198 (April, 1954).

A general review of developments in the dyeing of modern synthetic fibers with emphasis on acid dyes. A number of chemical structure diagrams of various synthetic fibers are presented.

Dyeing and finishing of polyvinyl chloride fibers

M. L. Gord. *Textil-Rundschau 9:* 70-76 (February, 1954); *in German.*

Polyvinyl chloride fibers may be dyed with vat, soluble vat, sulfur, naphthol and acetate dyes. Pigments are also used. The acetate dyes in particular give light, medium, and dark lightfast colors on "heat stabilized" fibers. By heating to a temperature which lies just above the softening point, the polyvinyl chloride fibers can be given a stiff finish. English summaries of this article appear in the *British Rayon and Silk J. 30:* 80,83 (April, 1954) and *Dyer 111:* 499 (April 2, 1954).

Dyeing of hydrocarbons containing condensed benzene nuclei

E. Cerutti and J. Martinet. *Teintex 19:* 277-301 (April 15, 1954); *in French.*

A review with 95 references.

The dyeing of textile fibers under static pressure

L. Drijvers (Teinturerie de Groeninghe, Courtrai, Belgium). *Am. Dyestuff Reptr. 43:* 243-246 (April 12, 1954).

The author describes the results obtained by the static process Steverlynck in a pressure-circulating machine dyeing. The static pressure used in the machine is claimed to (1) permit dyeing at temperatures above 100°C (212°F); (2) have a stabilizing influence on both dyebaths and bleaching baths; and (3) eliminate surface oxidation when using reducing baths, thus effecting a considerable saving in sodium hydrosulfite. 7 references.

Fast black dyeing of mixtures containing wool and staple fiber

H. Schleicher. *Textil-Praxis (English ed.) No. 3:* 128-130 (September, 1953).

Black dyeings on mixtures of wool and staple fibers with good fastness to washing and milling are obtained by one of the following procedures: (1) union dyeing with selected chrome black, (2) diazo black developed on staple fibers with chrome black for wool, (3) immedial black used for staple fiber and acid black for wool. Necessary details of procedures are given.

The indigosol continuous dyer

C. T. Speiser. *Textil-Rundschau 8:* 602-613 (1953); *in German.* Through *Chem. Abstracts 48:* 4223 (April 10, 1954).

Methods for operating commercial equipment for continuous dyeing with indigosols are given, together with data for strength of pad dyeing on cotton as a function of soaping time for 21 indigosol dyes at medium and high concentrations. The effect of soaping time was similar to that for the vat dyes from which the indigosols were derived.

New developments in the application of insoluble azoic dyes in printing

B. Jomain. *Teintex 19:* 253-275 (April 15, 1954); *in French.*

Piece dyeing controlled by new electronic means

Am. Textile Reptr. 68: 19-21 (April 22, 1954).

Dyeing temperatures at Raleigh Mills are measured electronically and transmitted to recorder controllers allowing remote control from dyer's office.

Pigment dyeing with indanthrene dyes

M. Brauer. *Melliand Textilber. 34:* 54-57 (1953); *in German.* Through *Chem. Abstracts 48:* 4222 (April 10, 1954).

Pigment dyeing on apparatus is discussed in detail. The influence of equalizing agents and other additions is discussed.

Printing of Terylene polyester fiber

A. G. H. Michie. *Can. Textile J. 71:* 60-62 (April 23, 1954).

Experimental work has shown that the Dispersol and Duranol dyes, Alcian Blue 8G, pigments in the form of pigment printing compositions, and vat dyes may be applied to Terylene fiber by printing techniques. The methods of application are outlined with stress being placed on the use of pressure steaming and swelling agents for the disperse dyes. Vat dyes are applied by the acid-leuco technique and require steaming at high pressures for satisfactory fixation. Their light fastness when printed on Terylene fiber is lower in practically all cases compared with prints on cotton. The mechanical conditions necessary to obtain prints of satisfactory quality on Terylene fiber are discussed.

Progress in the dyeing of the newer synthetic fibers

P. J. Choquette (General Dyestuff Corp.). *Textile Research J. 24:* 387-394 (April, 1954).

A general survey with 14 references.

Shade changes on soaping vat dyeings

J. Muller. *Textil-Rundschau 8:* 622-624 (1953); *in German.* Through *Chem. Abstracts 48:* 4223 (April 10, 1954).

Critical comments on Wegmann's proposal that changes in crystalline form are responsible for shade changes on soaping.

A unified theory of textile dyeing

J. Boulton. *Dyestuffs 40:* 199-211 (April, 1954).

A review with 40 references.

Wool dyeing at temperatures above 100° C.

W. Justus. *De Tex 13:* 188-189 (February, 1954); *in Dutch.*

An English summary of this paper is given in *Dyer 111:* 500 (April 2, 1954).

The beginnings of cotton printing in Europe

L. A. Driessen. *Melliand Textilber. 35:* 389-391 (April, 1954); *in German.*

With the aid of documents and recently disclosed historical information, the author throws new light on the beginnings of cotton printing in Europe, which received its impulse from the outstanding Indian articles. 22 references.

Printing of wool

J. A. Potter (Clayton Dyestuffs Co.). *Dyer 111:* 493-495 (April 2, 1954).

A brief discussion of wool printing including melange effects, and printing equipment.

Screen printing

R. Kunzl. *Textil-Praxis (English ed.) No. 3:* 135-139 (September, 1953).

A screen printing machine which is a combination of a motion magazine type and one operating with stationary screens has been constructed by M. & R. Siroky, Vienna. Named the H. A. S. M., it can print up to nine shades and has an estimated daily production of 850 to 1050 yards.

DRY PROCESSES D 3

An improved napper

Franz Muller, Munchen-Gladbach, Germany. *Textile Recorder 71:* 107 (April, 1954).

The McKiernan-Terry multi-purpose calender

J. W. Wilkinson. *Am. Dyestuff Reptr. 43:* 247-248 (April 12, 1954).

Features of this new calender are explained. By simple modifications it can be converted to frictioning, Schreinering, or embossing.

The use of superheated steam as a drying medium

J. H. Hunter (James Hunter Machine Co.). *Am. Dyestuff Reptr. 43:* P236-P238 (April 12, 1954).

When superheated steam is allowed to impinge at high speed closely and properly onto a wet fabric as in a Vapojet Tenter Dryer, certain favorable effects over hot air in drying are attained, according to the author, the most important of which are the following: (1) superheated steam eliminates the migration of resins and dyes, (2)

it eliminates overdrying, (3) it conditions the fabric, and (4) it reduces the over-all costs of drying.

GENERAL D 4

Finishing of fabrics

H. C. Borghetty (Rohm and Haas Company). *Textile Research J. 24:* 383-386 (April, 1954).

A general review of finishing developments, particularly resin finishing, and their relationship to increased use of synthetic fibers and blends.

Overfeed in finishing: principles and uses

K. S. Laurie. *Can. Textile J. 71:* 63-64 (April 23, 1954).

Overfeed for accurate reproduction of fabric dimensions.

Processing nylon or Perlon stockings

Textile Mfr. 80: 169-171 (April, 1954).

A brief description of finishing equipment is given.

Stains in finishing. Part 2. Metal and other stains

Wool Sci. Rev. No. 12: 20-32 (March, 1954).

The origin, damage, prevention, detection and removal of stains from iron, copper, and lead are discussed. Mention is also made of dyestuff, wood, and mildew stains. 4 references.

Textile finishing developments. Part 4. Finishing processes (continued)

Textile Wkly. 53: 992-994 (April 2, 1954).

The use of silicones is discussed. Numerous references to the literature are included.

TESTING AND MEASUREMENT E

FIBERS E 1

Determination of the moisture content of fibrous materials by the Karl Fischer method

F. L. J. van Lamoen and H. Borsten (Vezelinst. T.N.O., Delft, Neth.). *De Tex 12:* 861-862, 865-870 (1953); *in Dutch.* Through *Chem. Abstracts 48:* 4844 (April 25, 1954).

The Karl Fischer method, modified by Johansson, gave fast, accurate determinations of water in fibers, especially those containing other volatile materials (wool lubricated with olein). The visual end point was improved by the addition of methylene blue, and a potentiometric end point determination was devised. 18 references.

Measurement of the diameter of wool fibers

J. Rougeot. *Bull. Inst. Textile France No. 44:* 41-51 (February, 1954); *in French.*

The critical study of methods for measuring the diameters of wool fibers has emphasized the fact that satisfactory results are obtained only by microscopical measurement of diameters, according to the profile of the fiber. When examining rectilinear fragments, only large diameters of cross-sections are measured. Measurement of the large diameters enables the distribution of the various types of fibers in a bundle to be studied with greater accuracy than when the diameters are measured at random. Measurement of the large diameters combined with measurement of diameters taken at random permits calculation of a "contour coefficient" which characterizes the cross-sectional ellipticity of fibers. Finally, the average of large diameters constitutes interesting information in itself. 13 references.

Measurement of wool fiber ellipticity

Wool Sci. Rev. No. 12: 33-43 (March, 1954).

The shape of the cross-section of wool fibers is not usually quite circular. Some interest has therefore been shown in studying the actual shape and its possible relation to other characteristics of the fiber, such as crimp, handle and spinning power. Although of less importance than the other fiber characteristics so far dealt with in this series of articles, the measurement of the cross-sectional shape, or ellipticity, as it is commonly called, has a direct bearing on the measurement of fiber diameter. This article reviews the methods for ellipticity measurement so far used and includes some consideration of the relation of ellipticity to other physical properties of the wool fiber. 14 references.

Precision Microtome

Reynolds and Branson Ltd. *Textile Merc. 130:* 602 (April 2, 1954).

An instrument for use in textile laboratories to prepare cross-sections of fibers, etc. Essentially,

it consists of a hardened surface, through a hole in which a bundle of fibers projects ready to be cut, combined with an ejection mechanism which gives the desired thickness of section.

Projection microscope

Shandon Scientific Company, London. *British Rayon and Silk J. 30:* 59 (April, 1954).

This new projection microscope, the Reichart Fibroscope, is specially designed for the textile laboratory. The image is projected on to a large built-in ground glass screen approximately 8 inches in diameter. It can be viewed and discussed by several people at the same time, making the instrument useful for demonstrating, teaching, and group study.

The Shirley combined stapling test

Fibres 15: 126-128 (April, 1954).

Routine stapling tests are described: The comb sorter test (using the Shirley comb sorter) is used for measuring effective length, the immaturity test consists of finding the "maturity ratio" (degree of wall thickening) by visual examination of fibers under the microscope after swelling in caustic soda, and the fiber weight per centimeter test (using the Shirley Cantilever microbalance) is used for finding intrinsic fineness.

Application of electron microscopy to the study of cellulose acetate fibers

V. Peck and W. Kaye (Tennessee Eastman Co.). *Textile Research J. 24:* 300-306 (April, 1954).

The application of electron microscopy to the study of cellulose acetate fibers has been demonstrated by the use of high-resolution Al-Be replicas. Abraded surfaces and the skin of fibers have been studied. Various materials used for guides abrade the fiber surfaces in different manners. Ceramic guides cause a sticking action, whereas metallic guides produce a shearing of the cellulose acetate surfaces. The skin consists of a highly oriented layer which is caused by drafting the fiber while solvent is still within the core. It is nonuniform and less extensible than the core. Other factors remaining constant, higher draft causes formation of a thicker skin, which is made up of layers. Yarns broken in tension show very jagged cracks and hairlike protuberances. Pigment dispersions and structural details are revealed by etching the fibers. 8 references.

Solvent etching of cellulose acetate specimens for electron microscopy

V. Peck and W. Kaye (Tennessee Eastman Co.). *Textile Research J. 24:* 295-300 (April, 1954).

A technique is presented for etching cellulose acetate fibers and films by direct solution of the surface molecules. A relatively undisturbed interior layer of polymer is uncovered for replication. Etching is achieved by immersing the polymer for a short period in acetone cooled to -50°C and then flooding with an excess of cold absolute alcohol. The resulting surfaces may be replicated for electron microscopy by any adaptable replica technique. Examples are given of the skin, orientation, voids, and pigment dispersions in cellulose acetate yarns. 7 references.

YARNS E 2

The automatic tester I.T.F.-M for yarns for weaving

A. Marti. *Bull. Inst. Textile France No. 44:* 1-14 (February, 1954); *in French.*

With the I.T.F.-M automatic machine, yarns (particularly cotton yarns) for weaving can be conveniently and quickly tested by the continuous method under a specified tension. Numerous experiments made concurrently in laboratory and mill have shown that the technique used on this apparatus permits judging beforehand the frequency of breakages on the loom (all conditions being equal) of a yarn such as comes from a spinning mill.

Automatic thread strength tester

Henry Baer and Co. A.G., Zurich, Switzerland. *Textile Merc. 130:* 687 (April 16, 1954).

A new fully-automatic thread strength and elongation tester. The only attention required from the operator is to load the instrument with the yarn to be tested and start the operation, after which a hundred tests are automatically undertaken in about ninety minutes, after which the machine stops. The results of each test are recorded by two pens on a paper diagram, while special counters simultaneously register the average values of all tests so far undertaken.

Measurements of the air-drag of textile threads

C. Mack and E. J. L. Smart. *Shirley Inst. Mem. 27:* 21-35 (January, 1954).

The air-drag of textile threads of different materials (e.g. nylon, rayon, wool, and especially cotton) has been measured over a range of air speeds from 20-600 ft/sec and over a range of

counts. The results, the conclusions drawn from them, and descriptions of the experimental techniques used, are given in this paper. 10 references.

Measuring the parallelity of fibers

Paul Litty, France. *Fibres 15:* 141 (April, 1954).

The Parallex instrument produced by the French firm Paul Litty is described. It determines parallelization of fibers (by measuring their "useful length") and the uniformity of their distribution in the sliver or roving. This account is a summary of an article in the Dutch journal *De Tex 12:* 563-564 (1953).

Relaxation of stress in stretched cellulose fibers

R. Meredith. *Shirley Inst. Mem. 27:* 53-76 (March, 1954).

An apparatus is described for making stress-relaxation tests on yarns or monofils at controlled humidity and temperature. It incorporates an optical lever for measuring the tension, and observations can be made from 1/20 second after the start of an experiment up to several weeks. Cotton, flax, viscose, and cellulose acetate yarns were rapidly stretched at 65 per cent r.h. and 25°C, and the decay of tension followed for 24 hours. Further tests were made in which the specimens were held stretched for 15 minutes and relaxed for two hours, repeatedly, until mechanically conditioned. 23 references.

Testing apparatus for dynamic continuous stress with superimposed varying load

W. Wegener. *Melliand Textilber. 35:* 371-374 (April, 1954); *in German.*

During production and usage, many yarns are subjected to dynamic continuous stress with superimposed varying load, which is often coupled also with a static continuous load. These time-dependent properties have been simulated as closely as possible to practical conditions with the testing apparatus described in this paper. This apparatus is claimed to be capable of testing the finest yarns as well as tire cord. It permits hysteresis loops to be plotted with the help of either an optical or a mechanical recording mechanism. Diagrams, photographs, 4 references.

FABRICS E 3

The bubble pressure test for the measurement of the pore size of fabrics. Part 1. The development of the test

J. Lord and H. M. Taylor. *Shirley Inst. Mem. 27:* 1-9 (January, 1954).

An instrument has been designed, and a technique devised, for measuring the equivalent pore size of textile fabrics. The method is based on the determination of the pressure necessary to force air through the pores of a specimen of the fabric which has been completely wetted by a supernatant liquid of known surface tension. The effects of variations in certain arbitrary conditions have been investigated and a standard method of testing has been proposed.

The bubble pressure test for the measurement of the pore size of fabrics. Part 2. The application of the bubble pressure test to a study of the sealing of close cotton cloths when wetted

J. Lord. *Shirley Inst. Mem. 27:* 10-19 (January, 1954).

It has been found possible, by means of the bubble pressure test, to follow the sealing due to the swelling of close cotton cloths when increasing amounts of moisture are present in the fabric. The amount of sealing possible depends on the initial closeness of the fabric; a fabric with a small initial equivalent pore radius can seal more completely than one with twice the initial equivalent pore radius, for the amount to which the fibers and yarns can swell is approximately the same in both cases. In this test, bleached close cotton cloths show a decrease in equivalent pore radius with increasing moisture content beyond saturation regain. Water-repellent cloths, however, show no further decrease of pore size when water is present over the amount corresponding approximately to the supposed saturation regain. A measurable decrease in equivalent pore radius was observed from the dry to wet states in tests on a gabardine, but because this fabric has a larger initial interstice size the measurements are less precise and show less fractional decrease of pore size than the closer fabrics in oxford or matt weave.

Instrument evaluates the hand of fabrics

Thwing-Albert Instrument Co. *Textile Ind. 118:* 177 (May, 1954).

The Handle-O-Meter, an instrument developed by Johnson & Johnson for evaluating the "hand" or "handle" of fabrics is briefly described. A complete test can be made in only 15 seconds.

Measuring the wear-resistance of textile fabrics

Fibres 15: 114-116 (April, 1954).

The most important principles of wear-testing which have been evolved are described. The growing mass of experience in measuring the wear-resistance of textile fabrics has resulted in the

manufacture of continually improving apparatus and now consistent results can be obtained which are claimed to give a true indication of a fabric's behavior in the wear conditions to which it will be exposed in actual use. Diagrams and photographs are given of various types of apparatus.

Moisture regain determinations of textiles from dissipation factor measurements at 100 KC/S

L. T. Muus and R. W. Asmussen. *Danish Institute for Textile Research Contribution No. 15:* 1-20 (1952).

50 references.

GENERAL

Chemical instrumentation in the pulp and paper industry

J. Grant. *Fibres 15:* 119-122,130 (April, 1954).

Flow measurement in the fiber industries

Fibres 15: 129-130 (April, 1954).

Flowmeters for measuring the rate at which a gas or liquid is being transmitted are described, particularly the variable area flowmeter or Rotameter.

Impact tester for textiles

J. B. Dickson and L. A. Davieau (United States Rubber Co.). *ASTM Bull. No. 198:* 85-90 (May, 1954).

This impact textile tester was devised with the object of providing a single tester which, with suitable accessories, could be used for the determination of impact tensile strength of strands (yarns, cord, etc.) and stripes of fabric, as well as tear resistance of fabrics. The tester and its evolution are described in detail. Previous instruments are also reported. Tables of data are presented, as well as information on the time required for making tests.

Instrumentation for the fibers industries

Fibres 15: 131-138 (April, 1954).

Descriptions are given of a number of instruments of British, American and Continental origin.

Microscopy in cellulose research

M. L. Rollins (Southern Regional Research Laboratory). *Anal. Chem. 26:* 718-724 (April, 1954).

The gross and fine morphology of native cellulose fibers has been studied microscopically in a wide variety of physical and chemical environments. Recent technical developments in image formation and in methods of fiber dissection point to the filling of several gaps in existing knowledge. Heretofore, miscroscopy of the fiber has been limited to staining and swelling methods, together with the use of polarized light. Such examinations, including observations of birefringence, have contributed much to the present understanding of cellulose morphology, but the picture is still incomplete. Phase contrast microscopy, which can eliminate the necessity for staining, has not yet been fully explored, and infrared and ultraviolet microscopy have scarcely been applied at all to cellulose studies. Such methods, aimed at overcoming lack of contrast and of resolution, the main shortcomings of optical microscopy, deserve careful evaluation. The necessity of preparing suitably thin specimens for electron microscopy has led to useful advances in manipulative and microscopical techniques. The development of methods for isolation of individual components of the cell wall for purposes of electron microscopy has permitted interesting observations with the light microscope. Quantitative measurements of shrinkage in the isolated primary wall of the cotton fiber confirm its restrictive influence on fiber swelling. The location and orientation of the cellulosic "winding layer" is thought to account for its non-reactivity in certain substitution reactions. A review with 50 references.

pH measurement for the fiber industries

R. S. Evans. *Fibres 15:* 111-113,128 (April, 1954).

Uses are described for pH measurement in the paper industry, the jute and flax industries, and the chemical processes of the textile industry.

Scientific instruments can assist feltmaking

J. A. C. Watt. *Fibres 15:* 139-140 (April, 1954).

A brief review of instruments of use in feltmaking operations.

A single-sample multiple decision procedure for ranking means of normal populations with known variances

R. E. Bechhofer. *Annals of Mathematical Statistics 25:* 16-39 (March, 1954).

This paper is concerned with a single-sample multiple decision procedure for ranking means of normal populations with known variances. Problems which conventionally are handled by

the analysis of variance (Model I) which tests the hypothesis that k means are equal are reformulated as multiple decision procedures involving rankings. It is shown how to design experiments so that useful statements can be made concerning those rankings on the basis of a predetermined number of independent observations taken from each population. The number of observations required is determined by the desired probability of a correct ranking when certain differences between population means are specified. 19 references.

Testing and measuring instruments devised in the Wool Industries Research Association laboratories

Fibres 15: 123-125 (April, 1954).

The W.I.R.A. projection microscope, fiber fineness meter, fiber length machine, roving levelness tester, yarn crimp meter, water repellency tester and fabric abrasion machine are described.

Testing the fastness of colored textile materials to light and washing

Fibres 15: 117-119 (April, 1954).

This article discusses the requirements of these tests and present-day testing techniques and apparatus.

INDUSTRIAL ENGINEERING F

MACHINERY AND MAINTENANCE F 1

Machinery's handbook

15th edition. New York: The Industrial Press, 1954. 1911p. $9.00.

The new edition contains considerably revised and enlarged sections, bringing up-to-date tables, formulas and charts concerned with straight and bevel gears, fine-pitch worms and worm gears, various types of bearings, and other data. With the increasing demands upon performance and precision of textile machinery, this Handbook should form a useful reference for those in the industry concerned with new design, with improvement of existing equipment, and with related activities in the mill's shop.

The Brooks-Schaw differential gear constructed by Rieter

M. Boncelj. *Tekstil 3, No. 1:* 11-17 (1954); *in Serbo-Croat.* Through *Brit. Cotton Ind. Research Assoc. 34:* 258 (April 15, 1954).

The importance and purpose of the differential gear in the roving frame and factors affecting its performance (shape and diameter of the fly-frame bobbin and type of winding) are discussed. The number of revolutions can be calculated by the Swamp method as the sum of the constant number of revolutions of the main driving shaft and the variable number of revolutions of the cone drive gears. The Rieter differential gear, based on Brooks-Schaw principles is described, where the main driving shaft is charged with the major portion of the driving power for the rotating spindles. The changes in the number of revolutions can be presented graphically.

How trailability determines aisle usage for tractor-trailer units

Textile Bull. 80: 89-91 (April, 1954).

Various types of trailers are discussed and a number of diagrams explain how to plan correct aisle widths.

Services

Plant Location Studies
Investigation of Sites
Plant Layouts
Design of Buildings and Services
Design of Power and Steam Plants
Supervision of Construction
Economic Studies and Reports
Appraisals

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IN TEXTILES

QUALITY AND WASTE F 3

Control of materials and production in rayon weaving mills

G. Mirtschin. *Textil-Praxis 9, No. 1:* 35-40 (1954); *in German.* Through *Brit. Cotton Ind. Research Assoc. 34:* 266 (April 15, 1954).

Methods for controlling the materials before processing (visual testing and evaluation by means of the seriplane, count determination, filament number, tensile strength and elongation tests, twist testing, checking the levelness of dye, elasticity test, determination of scrooping-agent content, and moisture determination) are reviewed and the use of control tickets showing the values obtained is discussed. Practical advice is also given for controlling the production (control of stretching, identification of the material used, quality control, and control of thread breakage) in order to avoid breakdowns, increase production and improve the quality of the finished product.

Quality control in textile processing. Part 4

A. Webster. *Textile Mfr. 80:* 194-198 (April, 1954).

Quality control throughout cellulose acetate manufacture.

Supervisor and waste control

J. I. Teat (Southeastern Engineering Co.). *Textile Bull. 80:* 72-75 (April, 1954).

A discussion of the means of accomplishing optimum waste conditions, by setting proper standards and obtaining cooperation of supervision and operator concerned. The result is more efficient mill operation, better production and increased job security.

GENERAL F 4

Current trends in industrial plant design

F. L. Whitney. *Consulting Engineer 3:* 27-29 (April, 1954).

A review of recent developments permitting more efficient design of industrial plants. Such items as construction materials, transportation, and storage influences are considered as means of increasing efficiency and reducing cost.

Plant layout: how good is this layout?

W. P. Smith (Case Institute of Technology). *Modern Materials Handling 9:* 121-124 (May, 1954).

A new approach to the problem of evaluating a plant layout, using cost efficiency and attainment objective curves. This enables the engineer to compare various layouts on a relative basis.

SCIENCES G

CHEMISTRY G 1

Methods for the determination of cellulose chain-length distribution

G. Broughton (Univ. of Rochester). *Tappi 37:* 61-65 (1954). Through *Chem. Abstracts 48:* 4831 (April 25, 1954).

A review is given of the methods for determining molecular weight distribution in cellulose from the standpoint of selecting a suitable method for routine determination.

Use of glyoxal and its derivatives on textiles

L. Marcheguet. *Teintex 18:* 787-793 (1953); *in French.* Through *Chem. Abstracts 48:* 4845 (April 25, 1954).

Discussion of cross-linking cellulose molecules with glyoxal and its derivatives.

PHYSICS G 2

Capacity, dielectric constant, and power factor of fiber assemblies

J. W. S. Hearle (Clemson College). *Textile Research J. 24:* 307-321 (April, 1954).

The behavior of an air-fiber mixture is discussed. Measurements of the effective dielectric constant and power factor of yarns wound between cones have been made for a number of materials at various densities of packing, at frequencies between 50 c./sec. and 200 kc/sec., and at different moisture conditions. The results are discussed in their relation to the structure of the material, and are used to check the relation between electrical resistance and dielectric constant. 35 references.

Electrostatic effects in fiber filters for aerosols

A. T. Rossano, Jr. and L. Silverman. *Heating and Ventilating 51:* 102-108 (May, 1954).

A discussion of fibrous filters in which aerosol removal is accomplished by electrostatic forces occurring naturally within the fibrous mass. 8 references.

MISCELLANY H

The state of the Textile Research Institute

J. H. Dillon. *Textile Research J. 24:* 322-327 (April, 1954).

Dr. Dillon reviews the objectives and achievements of the Textile Research Institute. He also discusses its organization and financial situation.

Ten thousand and one customer complaints

J. Labarthe (Mellon Institute). *Textile Research J. 24:* 328-342 (April, 1954).

Customer complaints are analyzed and tabulated. The background and reasons for these complaints are discussed and suggestions are made for better care information and for better quality.

Textile Machinery Exhibition directory

Am. Textile Reptr. 68: 83-138 (April 15, 1954).

This issue of America's Textile Reporter is devoted to the textile machinery exhibition at Atlantic City. Directories of exhibits are classified by processes, products and machines, and by brand names.

PATENT CHECKLIST

U. S. Patents may be obtained from the U. S. Patent Office, Washington 25, D. C., for 25 cents per copy. Photostatic copies of foreign patents are available. Charges for these photostats are based on the number of pages in the patent.

FIBERS A

NATURAL FIBERS A 1

Combined harvester and decorticator for ramie

O. H. Bond, M. Haven and W. E. Wright (to Sea Island Mills, Inc.). USP 2 674 010, April 6, 1954.

MAN-MADE FIBERS A 2

Fiber-forming copolymer having dye-receptivity comparable to that of natural wool fibers

G. E. Ham (to Chemstrand Corp.). USP 2 676 952, April 27, 1954.

YARNS B

OPENING AND PICKING B 1

Machines for blending wool

J. D. Townsend (New Zealand). Can. Pat. 501 407, April 13, 1954.

Preparatory fiber opener

J. H. Senior and H. B. Riehl (to Proctor and Schwartz, Inc.). USP 2 676 361, April 27, 1954.

CARDING AND COMBING B 2

Machine for combing fibrous materials such as journal box waste

L. T. Evans. USP 2 676 362, April 27, 1954.

Sliver feed mechanism

R. Place (to the Barre Wool Combing Co. Ltd.). USP 2 674 013, April 6, 1954.

Top spinning roll for card room drawing

W. H. Noelting (to Faultless Caster Corporation). USP 2 674 012, April 6, 1954.

Wool tops: process and machine for improving

L. G. Bullard (to Talbot Wool Combing Co.). USP 2 674 011, April 6, 1954.

DRAWING AND ROVING B 3

Device for supporting and weighting the top rolls of drawing mechanisms

J. Raible and E. Dausch (to Vereinigte Kugellagerfabriken Aktiengesellschaft, Germany). USP 2 675 587, April 20, 1954.

Drawing apparatus for textile fiber preparation

W. Naegeli (to Aktiengesellschaft Joh. Jacob Rieter and Cie, Switzerland). USP 2 675 585, April 20, 1954.

Drawing frame for spinning machines

K. S. Hohloch (Germany). USP 2 675 586, April 20, 1954.

SPINNING, WINDING, TWISTING B 4

Bobbin clutching spindle for spinning frames

J. J. Lyth (Canada). USP 2 674 415, April 6, 1954.

Bobbin winding machine

H. T. O'Neill, Jr. (to Continental Elastic Corp.). USP 2 676 763, April 27, 1954.

Building motion for the building of yarn packages

L. C. Goodwin and C. H. M. Thorpe (to Harbens Ltd., England). USP 2 675 972, April 20, 1954.

Device for removing thread breakage and fly in spinning machines

K. Janner. USP 2 675 666, April 20, 1954.

Textile winding mechanism

E. J. Abbott and W. L. Perry (to Abbott Worsted Mills, Inc.). USP 2 675 184, April 13, 1954.

Winding machine

W. L. Perry (to Abbott Machine Co., Inc.). USP 2 675 183, April 13, 1954.

Transfer tail winding

E. C. Baker (to E. I. du Pont de Nemours and Co.). USP 2 676 762, April 27, 1954.

Winding machine

H. Wirth (to Thermoid Co.). USP 2 676 761, April 27, 1954.

GENERAL B 5

Split thread guide

W. Bakker (to American Enka Corp.). USP 2 674 419, April 6, 1954.

Traveling fan mechanism for the lint and dust cleaning of textile machines

R. T. Moore. USP 2 676 352, April 27, 1954.

FABRICS C

WARPING, SLASHING, YARN PREPARATION C 1

Method of sizing warp yarns

C. L. Still (to Springs Cotton Mills, Inc.). USP 2 675 601, April 20, 1954.

Sizing of ethylene polymer structures

T. F. Banigan (to E. I. du Pont de Nemours and Co.). USP 2 676 120, April 20, 1954.

Sizing of ethylene polymer structures

A. F. Chapman (to E. I. du Pont de Nemours and Co.). USP 2 676 121, April 20, 1954.

Textile warping machine

J. L. M. Morrison, A. Robertson and A. W. H. Porter (to F.N.F. Ltd., England). USP 2 674 778, April 13, 1954.

WEAVING C 2

Automatic take-up reinforce for loom picker sticks

C. B. Lundstrom (to Lundstrom Laboratories, Inc.). USP 2 674 276, April 6, 1954.

Bobbin for low denier cellulose acetate threads

G. Curtis (to Courtaulds Ltd., England). USP 2 674 418, April 6, 1954.

Bobbin-handling mechanism

E. J. Abbott (to Abbott Worsted Mills Inc.). USP 2 675 971, April 20, 1954.

Bobbin packing mechanism

W. L. Perry (to Abbott Machine Co., Inc.). USP 2 675 152, April 13, 1954.

Dobby for shuttleless automatic looms

V. Werner and K. Kubelka (to Prototypa, Narodni Podnik, Czechoslovakia). USP 2 674 272, April 6, 1954.

Harness frame connector

P. C. Consoletti (to Draper Corp.). USP 2 676 619, April 27, 1954.

Heddle frame for looms

A. Blickenstorfer (to E. Froehlich A.G., Switzerland). USP 2 674 273-275, April 6, 1954.

Jacquard mechanism for looms

H. V. Foster (to Crompton and Knowles Jacquard and Supply Co.). USP 2 675 833, April 20, 1954.

Mechanism for actuating thread twisting means in looms

E. Pfarrwaller (Switzerland). USP 2 676 618, April 27, 1954.

Pile wire and a method of weaving pile fabrics

F. P. Groat (to the Magee Carpet Co.). USP 2 674 269, April 6, 1954.

Pile wire for looms

H. J. Smiley (to James Lees and Sons Co.). USP 2 674 270, April 6, 1954.

Pile wire for use in a pile wire carpet loom

W. A. Rice (to Mohawk Carpet Mills, Inc.). USP 2 674 271, April 6, 1954.

Shuttle brush and holder

J. A. Matson. USP 2 675 834, April 20, 1954.

Shuttle guide

W. H. Wakefield (to Crompton and Knowles Loom Works). USP 2 675 027, April 13, 1954.

Warp tension control means

R. H. Roughsedge and H. G. Lustig (to Celanese Corp. of America). USP 2 674 110, April 6, 1954.

Weft beat-up for fly shuttle looms

R. G. Turner (to Crompton and Knowles Loom Works). USP 2 675 028, April 13, 1954.

Weft detector for looms

S. F. Siciliano (to George C. Moore Co.). USP 2 674 277, April 6, 1954.

Weft parter

L. G. Urquhart (to H. F. Livermore Corp.). USP 2 676 620, April 27, 1954.

Weft stop motion device for looms for weaving tufted pile fabrics

E. S. Butler and A. Sutcliffe (to Platt Brothers and Co. Ltd.). USP 2 675 029, April 13, 1954.

KNITTING C 3

Control method and system for knitting machines

R. Bassist. USP 2 674 109, April 6, 1954.

Hosiery and method of production: top for a seamless stocking

R. E. Primm (to Rome Hosiery Mills). USP 2 674 111, April 6, 1954.

Method and apparatus for cutting and clamping in straight knitting machines

A. Dyjak (to Svit, Narodni Podnik, Czechoslovakia). USP 2 674 866, April 13, 1954.

Method and mechanism for knitting hosiery

A. P. Graenz. USP 2 674 864, April 13, 1954.

Straight bar knitting machine

K. W. Wickardt (to Hosemaster Machine Co. Ltd., England). USP 2 674 865, April 13, 1954.

Tensioning device for knitting machines

V. Butler (to Burlington Mills Corp.). USP 2 674 867, April 13, 1954.

Welt bar for full fashioned hosiery machines

A. P. Saunders (to Wildt and Co. Ltd., England). USP 2 676 473, April 27, 1954.

Welt rod mechanism of straight bar knitting machines

A. Shortland (to Mellor Bromley and Co. Ltd., England). USP 2 675 688, April 20, 1954.

GENERAL C 4

Automatic doffing winder

F. R. Piper and J. M. Gardner (to West Point Mfg. Co.). USP 2 675 186, April 13, 1954.

Conveyer belt of textile fabric having a conveyor surface of cured latex

M. J. Wagner (to Globe Woven Belting Co. Inc.). USP 2 675 906, April 20, 1954.

Method and apparatus for making non-woven fabrics

C. H. Plummer, N. Truslow and J. Frydryk (to Chicopee Manufacturing Corp.). USP 2 676 363, April 27, 1954.

Method and apparatus for making non-woven fabrics

C. H. Plummer and R. W. Vose (to Chicopee Manufacturing Corp.). USP 2 676 364, April 27, 1954.

Method of flocking textile fabric

S. M. Schwartz and D. Gross (to Velveray Corp.). USP 2 675 330, April 13, 1954.

Method of producing an improved pile fabric

E. E. Walker, R. J. Mann and J. F. Levers (to British Celanese Ltd., England). USP 2 675 337, April 13, 1954.

Pile carpet and method of making

H. A. Reinhardt and W. F. Moody (to Bigelow-Sanford Carpet Co., Inc.). USP 2 676 384, April 27, 1954.

Process of preparing nonwoven fabric and product

J. A. Piccard (to E. I. du Pont de Nemours and Co.). USP 2 676 128, April 20, 1954.

Stop device for web feeding means

B. E. Bradley (to Egry Ltd., England). USP 2 676 800, April 27, 1954.

Web winder

W. E. Aulen (to Eddystone Machinery Co.). USP 2 676 764, April 27, 1954.

FINISHES D

WET PROCESSES D 1

Antistatic treatment of hydrophobic fiber

J. R. McCarthy (to E. I. du Pont de Nemours and Co.). USP 2 676 122, April 20, 1954.

Apparatus for liquid treatment of warps of closely spaced parallel rayon threads

H. A. Schrenk (to American Enka Corp.). USP 2 674 113, April 6, 1954.

Apparatus for the wet treatment, such as bucking, sizing, bleaching, dyeing, washing, neutralizing, and impregnating, of natural or synthetic textile fibers

B. Steverlynck (Groeninghe Ververij P.V.B.A., Belgium). German Pat. 822 538, November 26, 1951.

Application of antistatic materials to dielectrics

C. Harmon (to Chicopee Mfg. Corp.). USP 2 676 115, April 20, 1954.

Aqueous textile finishing composition containing methylol higher fatty acid monoamides

F. M. Schofield (to E. I. du Pont de Nemours and Co.). USP 2 676 936, April 27, 1954.

Aqueous textile finishing composition containing methylene higher fatty acid diamides

F. M. Schofield (to E. I. du Pont de Nemours and Co.). USP 2 676 937, April 27, 1954.

Bleaching of wool

J. J. McGovern (to E. I. du Pont de Nemours and Co.). USP 2 676 871, April 27, 1954.

Coated article and process of making same

H. W. Paxton and F. S. Elkins (to U. S. Rubber Co.). USP 2 674 547, April 6, 1954.

Coated nylon fabrics

W. Charlton and E. G. Rutter (to Imperial Chemical Industries Ltd., England). USP 2 676 164, April 20, 1954.

Method of removing oil and starch binder material from glass cloth

E. H. Balz (to Glass Fibers Inc.). USP 2 674 548-549, April 6, 1954.

Process of coating fibers with gas agitation

J. Y. L. Kao (to F. D. Farnam Co.). USP 2 676 099, April 20, 1954.

Textile lubricant

F. Fortess and C. Hohing, Jr. (to Celanese Corp.). USP 2 676 924, April 27, 1954.

Treatment of textile materials comprising a major portion of a synthetic polymer textile material with an anti-static finish

O. P. Cohen and M. J. Scott (to Monsanto Chemical Co.). USP 2 676 896, April 27, 1954.

DYEING AND PRINTING D 2

Dye tub equipped with color concentrate distributing and mixing means

J. De Marco. USP 2 676 478, April 27, 1954.

Perforated conical dye tube for the winding of textile threads

B. R. J. Steverlynck (to Groeninghe Ververij P.V.B.A., Belgium). USP 2 675 194, April 13, 1954.

Process of dyeing nitrogenous materials with metallized azo dyes

W. Widmer and C. Zickendraht (to Ciba Ltd., Switzerland). USP 2 674 515, April 6, 1954.

DRY PROCESSES D 3

Textile apparatus for removing liquid from a wet yarn

E. T. Jones, Jr. (to Celanese Corp. of America). USP 2 674 112, April 6, 1954.

BOOKS, PAPERS, AND PAMPHLETS

Added to the library during the past month

CHEMISTRY AND BIOLOGY

Feigl, Fritz	Spot tests, v. 1. Inorganic applications. 4th rev. English ed.	Amsterdam, Elsevier, 1954. 518 p.
Maxwell, M. E.	Production of mould protease on a pilot-plant scale. (Wool Textile Research Laboratories technical paper no. 1).	Melbourne, Australia, Commonwealth Scientific and Industrial Research Organization, 1950. 16 p.

COTTON

American Cotton Congress	Proceedings of the 14th American Cotton Congress.	Lubbock, Texas, Cotton Research Committee of Texas, 1953. 101 p.
U. S. Agricultural Marketing Service.	Cotton quality statistics, United States, 1952-53. (Statistical bulletin no. 137).	Wash., January, 1954. 64 p.
Murchison, Claudius	The cotton textile industry and foreign economic policy.	Charlotte, N. C., American Cotton Manufacturers Institute, February, 1954. 30 p.
Millowners' Association, Bombay, India.	Facts about the cotton mill industry of India.	Bombay, 1953. 21 p.

ELECTRONICS

Eitel-McCullough, Inc.	Eimac tubes.	San Bruno, Calif., 1952.

FABRICS

Bickford, H. J.	Development of 0.9-oz. nylon parachute cloth. (WADC technical report 53-351).	Wright-Patterson Air Force Base, Ohio, Wright Air Development Center, September, 1953. 22 p.

FIBERS

Urquhart, A. R.	The structure of textile fibres; an introductory study.	Manchester, Textile Institute, 1953. 165 p.
Preston, J. M.	Fibre science. 2d ed. rev. and enl.	Manchester, Textile Institute, 1953. 421 p.
de Vries, Hendrik	On the elastic and optical properties of cellulose fibres.	Utrecht, Holland, Schotanus and Jens, 1953. 111 p.

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OPTICS

Morgan, Joseph	Introduction to geometrical and physical optics.	N. Y., McGraw-Hill, 1953. 450 p.

REFERENCE BOOKS

	Thomas' register of American manufacturers. 1954. 5 vols.	N. Y., Thomas Pub. Co., 1954.
	Review of textile progress, v. 4, 1952.	Manchester, Textile Institute and Society of Dyers and Colourists, 1953. 560 p.
	Davison's textile catalogues and buyers' guide. 1953 edition.	Ridgewood, N. J., Davison Pub. Co., 1953. 447 p.
Textile Institute	Yearbook of the Textile Institute, No. 6, 1953-54.	Manchester, England, 1954.
U. S. Bureau of Agricultural and Industrial Chemistry.	Report of the chief, 1953.	Wash., 1953. 75 p.
Lief, Alfred	The Firestone story: a history of the Firestone Tire and Rubber Company.	N. Y., McGraw-Hill, 1951. 437 p.

SAMPLING

Dodge, H. F.	Sampling inspection tables; single and double sampling.	N. Y., Wiley, 1944. 106 p.

STANDARDIZATION

Organization for European Economic Co-operation.	Some aspects of standardization in the U.S.A. and in Europe.	Paris, 1953. 89 p.

TEXTILE ECONOMICS

Bradley, J. R.	Out-of-state purchases of textile mill, apparel, and related products by Texas organizations, 1952. (Research report 44).	College Station, Texas, Texas Engineering Experiment Station, September, 1953. 8 p.
Carr, D. W.	Economics of preparing wool for market and manufacture. (Technical bulletin no. 1078).	Wash., U. S. Dept. of Agriculture, November, 1953. 88 p.
Millowners' Association, Bombay, India.	Clothing India's millions.	Bombay, November, 1953. 31 p.